New England
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More Seasonal Job Stability

"Seasonally adjusted," the announcer adds to the employment figure, and with these two words removes one of the sources of job fluctuations. The purpose of this article is to concentrate on seasonality, rather than dismiss it, and evaluate the seasonal influences on New England's employment in the postwar period.

To begin with, the rather optimistic observation can be made that seasonal fluctuations in New England employment have lessened since 1947. A quick look at the chart on the next page and one might conclude otherwise. Depending on the point of view, he might be right.

The seasonal fluctuations shown in the chart were calculated from employment data of the period 1947-58 with cyclical influences removed. The chart shows that in 1947 total nonagricultural employment declined 3.1 percent from the seasonal high to the seasonal low. By 1958 the seasonal decline was greater — 4.1 percent. That would appear to be a worsening in seasonality, but it is only part of the story.

When the individual employment series for specific industries are examined, it is found that only six of the 25 industries had greater differentials between the

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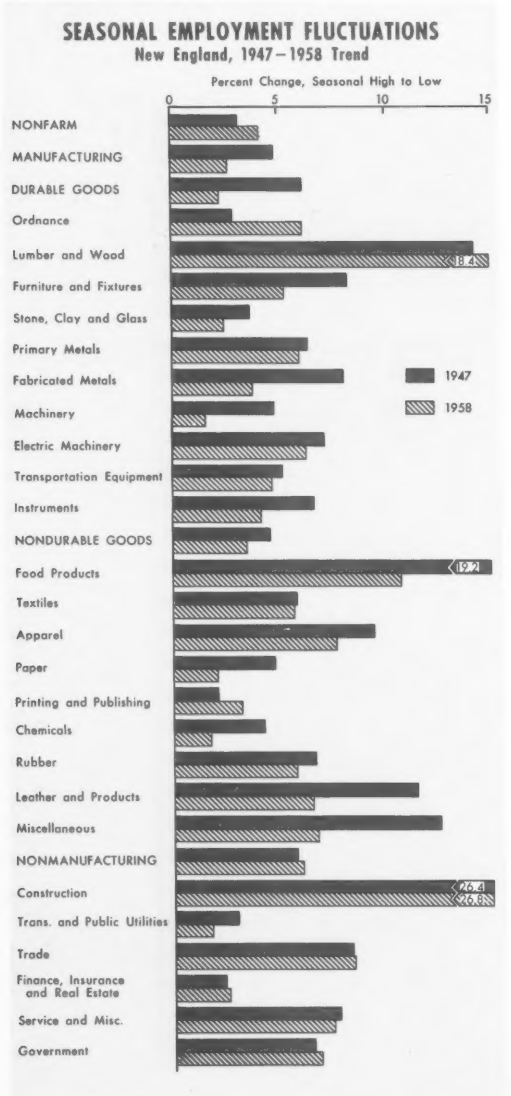
seasonal high and seasonal low in 1958 compared to 1947. Adding the workers affected in each individual industry gives an aggregate of 260,000 workers affected by seasonal layoffs in 1947. In 1958 only 250,000 workers were affected, despite an increase in the work force. On this basis seasonal job fluctuations have diminished: fewer workers are affected by seasonal layoffs.

In 1947, five individual industries out of 25 had more than a 10 percent drop in employment from seasonal high month to seasonal low. Only three exceeded 10 percent by 1958.

There were 11 industries in 1947 with more than a 7 percent decrease in employment from seasonal high to low. Only six industries were above 7 percent in 1958.



Now there remains that sticky problem of the percentage change from seasonal high to seasonal low in the over-all nonfarm employment picture. The reason that this percentage has grown despite the improvement in the vast majority of individual series is a difference in timing. There is a tendency for the seasonal unemployment that does exist to be lumped more in the same period of time.

In 1947 seasonal unemployment was more diffused. As some industries had layoffs, others were operating at seasonal peaks. Seasonal influences in one industry were offset against another industry, and on the whole the difference between the seasonal high and the seasonal low was reduced because of this divergent timing.

By 1958 there was more of a tendency for the results of seasonal influences to be concentrated in certain time periods. This made a larger spread between the seasonal high and low, even though the total number of workers affected was lower. For instance, in 1947 five of the individual industries had their employment high points in December. By 1958, 10 industries had their high point in this month.

Theoretically, every one of the individual industries could have shown an improvement in seasonal high-low differences, yet divergent timing and magnitude of change could have caused the seasonal high-low difference in total nonfarm employment to increase. Something close to this theoretical extreme did occur in New England industry during the postwar period.

Another test of seasonality is the monthly deviations of the industry's employment from an average level that might be called normal. It is possible that an industry may experience a severe drop in employment from seasonal high to seasonal low, yet be quite normal or stable for the remaining months of the year.

Computation of monthly deviations reveals that generally those industries which showed greater percentage differences between seasonal high and low also had greater monthly deviation from normal in 1958 compared to 1947.

Causes of Seasonality

Four of the seven most highly seasonal industries in 1958 were in the nonmanufacturing group. Employment in the nonmanufacturing sector has become slightly more unstable seasonally than in manufacturing industries. This reflects the timing and magnitude of the slightly increased seasonality of contract construction, finance, insurance, real estate and government employment—increases which were not offset by the negligible improvement in seasonal stability of the other three nonmanufacturing series.

In manufacturing, except for industries processing raw materials, the more highly seasonal industries are closer to the consumer. The most stable industries are in semi-finished products or industrial and heavy goods.

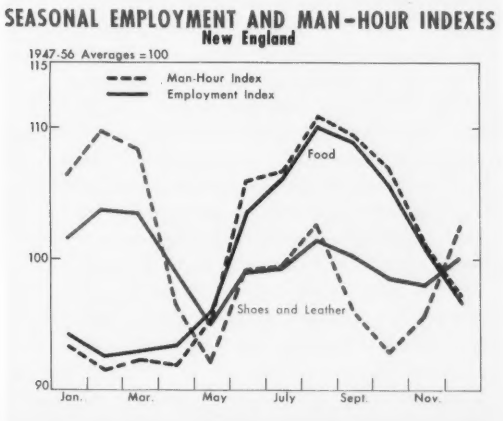
Industries whose output is most closely influenced by weather conditions (lumber, food, construction) have the highest degree of seasonality. Growing and harvesting seasons set a rigid pattern on a large portion of economic activities. This is true not only of foodstuffs, but also cotton, wool, and wood products. Weather also plays a critical role in the tourist industry and in construction and transportation, as frost or freezing limits outside work.

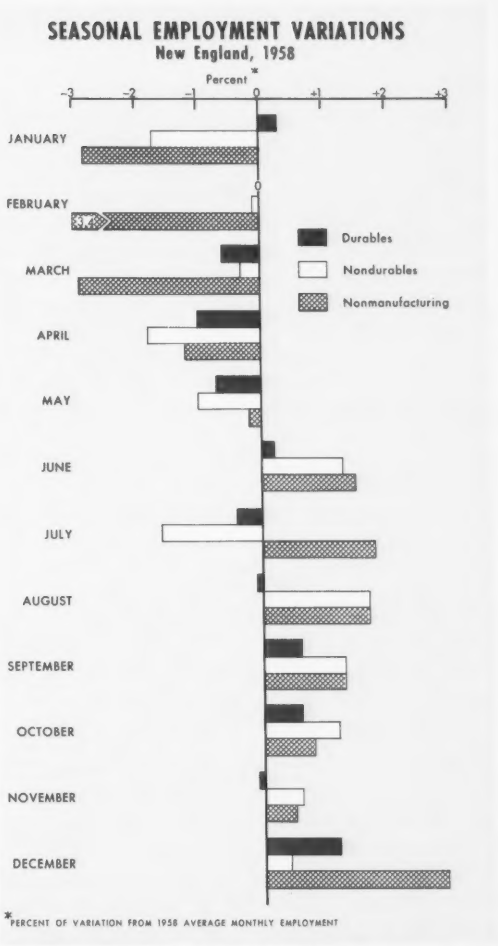
Next in seasonality, after weather-influenced industries, are those industries influenced strongly by the fashion cycle and other consumer buying habits (services, trade, apparel, leather). As creatures of habit consumers have adopted a pattern of actions that greatly affects economic activities. They have selected December 25 for an annual outpouring of gifts that draws largely on the toy, jewelry and other luxury industries. In March or April they concentrate on new clothes, and on July 4th consume almost a year's supply of fireworks. These customs create unevenness in consumption and frequently in production and employment.

Vacation shutdowns also play a role in seasonality. Some plants shut down for a period of time annually to give vacations to their employees. Workers not eligible for vacations are often laid off during the shutdown, affecting the industry's employment. Increased vacation time also affects seasonality by shifting more employment to the tourist industry.

Problem Industries

Two of New England's "problem" industries illustrate weather and custom as causes of seasonal fluctuations. The 1947-58 seasonal pattern of these two industries is plotted on the chart at left. The case of the food industry clearly traces to weather patterns—food must be processed when it is harvested. The chart plots both man-hours and total employment. The parallelism of the two indicates the peak problem is met primarily by expanding the work force—putting on temporary summer help.





Fluctuations in man-hours of the shoe and leather industry are traceable to many sources, some dependent on the weather. Consumers wish to buy their ski boots in winter and play shoes in summer. During the winter season hours are lengthened sharply, while employment also rises. Then both hours and employment are cut sharply by about 15 percent in hours and 8 percent in employment in a two-month period. During the fall, hours are cut back sharply again and employment slowly follows. Between October and November the 10-year patterns show conflicting trends because the number of

persons employed continues to fall while average workweeks are lengthened.

Costs of Seasonality

Not all of the unemployment associated with sharp seasonal swings is necessarily socially undesirable. Many of the workers employed in meeting the seasonal peak in the food industry and apparel industry are students, retired people, or housewives who would not be available for full-time employment. This is less true of other manufacturing industries, where workers have demonstrated their desires for steady work.

It's a fair assumption that the 114,000 workers attached to the New England shoe and leather industry would like to work most of the year at their February workweek of 36 hours. If they were to do so, they would put in 5.3 million manhours more than they now do because of the seasonal patterns, even after allowance for an entire month as unpaid vacation. Alternatively stated, the industry, working evenly, could produce its current annual output with about 2.4 percent fewer production workers. By way of comparison, the electrical machinery industry could release only about 0.7 percent of its employees by eliminating seasonal unevenness.

General improvement since 1947 in New England's over-all employment seasonality is partly due to changes in the structure of the region's industries. A much bigger proportion of the work force is employed in durable goods manufacturing, which is less seasonally sensitive.

But much of the improvement is the result of objective effort on the part of employers. This is especially evident in improvement in the two problem industries mentioned earlier—food and shoe and leather. Although construction showed some worsening, there is little that can be done to overcome the weather problem in an outdoor industry.

Seasonal instability increases a firm's costs in both tangible and intangible ways. Some of the extra tangible costs are in recruiting, hiring and retraining. It also raises unemployment compensation rates which are based on the firm's employment record. The cost to the worker occurs both in loss of income and in unmeasurable costs, such as insecurity and loss of skills. To reduce these costs to both employer and employee, efforts are warranted to reduce seasonal employment fluctuations.

This article is based on a study, "Postwar Fluctuations in New England Employment." Copies are available on request from the research department of the Federal Reserve Bank of Boston.

Seasonal Adjustment

Seasonal adjustment of data is the removal of variations due solely to seasonal factors. The purpose of the adjustment is to make more apparent other influences on the data, such as cyclical fluctuations and long run trend. If, for instance, employment is rising, it is important to know if the increase is normal for the season or if it arises from other sources. A 10 percent increase in employment is much less significant if seasonal forces would normally result in a 9 percent increase for the period. If this rise were presented in seasonally adjusted data, it would appear as only a 1 percent increase. Seasonal adjustment is computed by observing historical trends, with a span of at least 10 years generally considered a minimum. The historical series is used to determine the percentage by which each month normally varies from the monthly average for a year. Statistical methods are used to eliminate cyclical and other nonseasonal influences and "seasonal adjustment factors" are computed for each month. A value of 100 for any month indicates no correction for seasonal forces is needed for the month. If the value is less than 100, seasonal forces are exerting a downward influence. If it is above 100, the seasonal influence is upward. The adjustment factors are computed so that each month's subtractions and additions offset each other and add up to zero for the year. The seasonal factor itself changes over time, usually gradually. For many series it can be assumed to change rather infrequently. National employment figures are adjusted on the basis of ratios which are changed continually as new data become available. Since 1947, the New England office of the Bureau of Labor Statistics has prepared monthly estimates of regional employment, but currently these figures are not issued on a seasonally adjusted basis. Plans are under way to begin issuing seasonally adjusted figures this fall.

Financing Auto Sales

Every year about this time the race in automobile sales moves into home stretch. Dealers want to clear old models before the new ones come in; buyers are looking for bargains.

With this seasonal turn of events the use of credit in car purchasing tends to increase, and a larger proportion of new car sales is financed in the second half year than the first. This seasonal pattern of credit is one of the findings of a survey of auto financing which the Federal Reserve Bank of Boston has conducted for the past four years with the cooperation of New England commercial banks.

It is estimated that 60 to 70 percent of new car sales are financed directly with the automobile as collateral. There is an additional amount of indirect financing, such as personal instalment loans or single payment loans secured by other collateral.

The survey indicates that banks as a whole carry about one-half of New England's auto financing. Fourteen banks, accounting for about 55 percent of the region's bank-financed auto loans, participated in the Federal Reserve survey. The surveyed banks finance about 15 percent of total new car sales in the region.

Within each year since the survey was launched in 1955, both car sales and car financing are low in the months of December, January, and February. A sharp spring upturn begins in March, and the levels are high through the summer. Sales usually reach a peak in April and then decline slowly to model changeover time, when the decline becomes sharper.

Financing contracts, on the other hand, reach a high later in the year, usually July, and the decline is quite gradual until November. Apparently selling efforts late in the model year are directed more toward credit customers. Freer granting of credit is a form of price reduction. Actual price concessions are also made to a greater extent at this time of year.

Since new car financing declines more slowly than new car sales after mid-year, the proportion of loans to sales rises. This is shown by the following tabulation of the ratio of new car loans of surveyed banks to new car sales in the region:

	1956	1957	1958	1959
First half	13.5	14.4	14.5	16.5
Second half	15.2	17.0	16.9	
Year	14.3	15.7	15.7	

The proportion in the first half of 1959 was substantially higher than in the preceding three years. This may indicate a rising trend of credit to cash sales or some shift in the seasonal pattern although it is possible that the surveyed banks are getting a greater share of the business.

Year to year changes in credit contracts have been almost identical with new car sales. New car contracts are closely associated with new car sales. Credit contracts on late model used cars (less than three years old) are also closely associated with new car sales because most new car sales involve a late model trade-in which is also financed when it is resold.

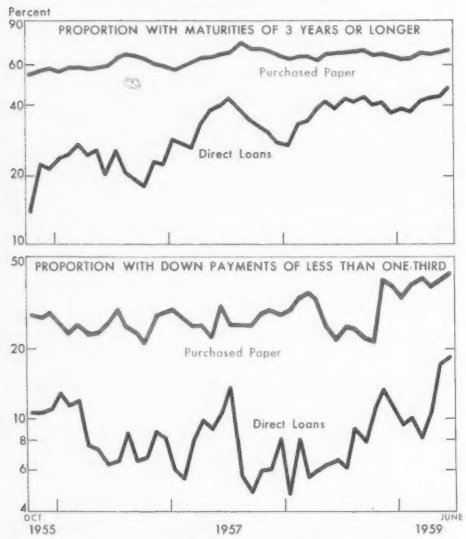
Sales and financing contracts both fell in 1958 by almost exactly the same relative amounts. Both started off in 1959 at quite low levels, but in March turned up sharply to reach the highest level since 1955. New car sales established a record in 1955, and sales in later years have not come close to equaling it.

Terms and Rates

Retail interest rates – the rates to the car purchaser – have been quite stable in the years covered in the survey. Rates on the original balance have hovered around 5 to 6 percent.

Interest rates can be stated in discount terms, as 5 or 6 percent, or they can be translated into an annual rate – the effective rate – which is roughly double the discount rate. The discount rate is applied to the full amount borrowed. The effective rate is applied to the average amount owed over the life of the loans. The average comes to about half the original amount since repayments are made over the life of the loan. If $1,000 is borrowed for one year at 6 percent discount, the interest cost comes to $60 which is

TERMS ON AUTO LOANS
at Reporting Banks in New England



12 percent of the $500 average amount of loans outstanding for the year as a whole.

Although rates have remained stable, maturities and down payments have fluctuated. (See chart above). Longer maturities have increased as a proportion of the total at a slow but steady rate since the survey was launched in 1955. Data from other sources show that there was a large increase in 1954 and early 1955.

Variations in down payments have resembled those of maturities. There has been an irregular rise in the proportion of down payments of less than one-third.

Maturities and down payments movements within the year correspond to the use of credit for car purchases. A higher proportion of loans is made on liberal terms when credit use is most intense. This tendency seems to be lessening.

Terms differ somewhat between loans banks make directly to customers and loan paper which they purchase from car dealers. Banks allow smaller down payments and longer maturities on the purchased paper because they usually have recourse to the dealer in case the borrower fails to make repayments.

Competition for Auto Loans

Competition for auto financing is probably as intense as in any phase of banking, despite the fact that each loan is small compared to the average mortgage or business loan or investment purchase. Auto financing has become standardized and has proven to be low in risk and more profitable on the average than other types of business.

Operation of nationwide sales finance companies has tended to develop a fairly unified market in the entire country. The spread is narrow in the borrowing rates among various sections of the country. This spread is generally smaller than on conventional residential mortgage loans even though interest is a much more important cost in the case of a mortgage.

Although the gross earning rate on auto loans is 10 to 12 percent a year, car dealers who originate the "paper" share in the return, leaving the bank which buys the paper an earning rate of 7½ to 10 percent. The interest return to the dealer is part of his operating income and may at times represent a large share of the profit he makes on a sale.

At 7½ to 10 percent, auto loans are an attractive asset for banks. This return is substantially higher than the average on business or mortgage loans. Processing costs tend to be high also, probably averaging between 3 and 4 percent and running substantially higher in some cases. If processing costs are not kept under control, the net yield on auto loans can easily fall below that for prime business loans.

In order to control processing costs many banks have utilized machine methods of handling auto as well as other instalment loans. The instalment loan department is often the first department in a bank to become mechanized. Once an efficient processing system is set up, total departmental costs tend to be high, even though per unit loan costs may be low. There is then a constant pressure to maintain volume in the department to spread the heavy fixed machine and staff costs over a large volume of business. Consequently competition for auto loan business is quite keen. Rate competition is usually limited to the 10 to 12 percent range. Competition is also expressed in changes in the share of the return going to the dealer.

The general rise in interest rates during the past year as well as over the past five years has raised net yields on banks' alternative uses of funds. Average net yields on auto loans have not shown a similar rise. A continuance of this trend could cause some realignment in either average retail rates or the share going to dealers.

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Increase in Department Store Sales

Sales in New England department stores exceeded those of a year ago each month of the first seven months this year. Sales were 4 percent larger than during the same period of 1958.

In spite of the gains, sales during this period of 1959 were about 1 percent less than during the first half of 1956 and of 1957, periods of high business activity. The improvement in 1959 sales reflects the change for the better in other measures of economic activity, such as employment and income, especially as related to early 1958, the low point of the recent recession.

Sales of department stores in each of the six New England states have advanced from year-ago levels but to a greater extent in two of the southern states. Two percent gains were achieved in each of the northern states and Connecticut while increases reached 4 percent in Massachusetts and 7 percent in Rhode Island.

Sales gains differed among the various New England cities for which information is available but the greatest year-to-year increases were made in the suburban part of the Boston Standard Metropolitan Area. Newly established and expanded stores have contributed to the continuing shift of sales from downtown to suburb for a number of years. Division of the area's 5 percent gain between suburban and downtown Boston reveals a 16 percent increase versus a 2 percent loss for the first seven months this year.

Departmental Gains Uneven

Sales gains have varied among departments, and in a few cases sales volumes were actually lower than a year ago. Last year fur caravans which toured New England stores bolstered sales, and in their absence fur sales have lagged. Until June umbrella sales fared poorly due to dry weather. June's rains caused sales to increase, but sales for the year to date are still less than a year ago. Sales of luggage were sluggish until June arrived, bringing vacation time near.

Basement store departments have not, in total, improved on last year's volume. They face strong competition from bargain, factory, and discount outlet types of stores. Upstairs, most of the other departments achieved larger sales than a year ago.

Men's and boys' clothing departments rang up much larger sales than a year ago. Men's clothing volume was up 16 percent. Sales of women's apparel and accessories were up about 7 percent. Sales of these items might have shown more gain except for the poor Easter shopping weather as well as the very early date of Easter this year. Within these major groupings, best sellers were suits, dresses, shoes, blouses, skirts, sportswear, handbags and small leather goods.

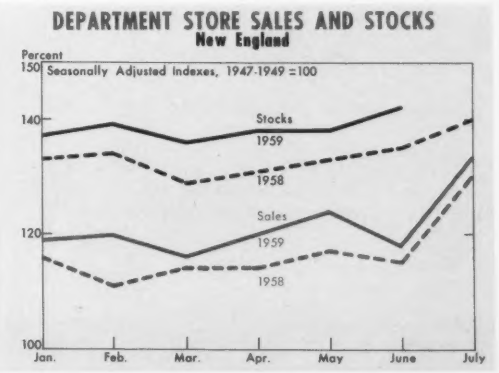
Sales of the homefurnishings departments increased 8 percent from year-earlier totals. Household appliances were up 16 percent, furniture 8 percent and floor coverings 10 percent. Sales of the television, radio, phonograph, records and musical instrument departments did not really perk up until June, and then the gains were in the records and musical instruments sections of these departments.

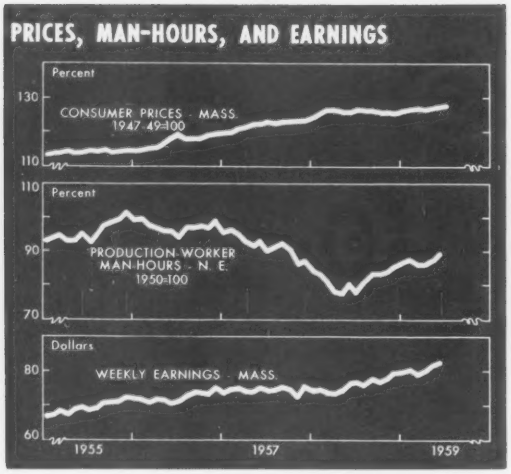
Among the other departments, better-than-average performances were turned in by sporting goods and cameras, books and stationery, and silverware and clocks. Gains in remaining departments were average or slightly less.

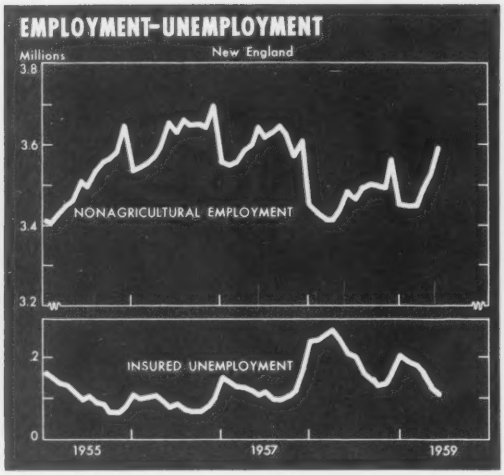
Credit Paces Sales

Total accounts receivable at New England department stores at the end of June were 7 percent greater than a year ago. Greater expansion has occurred in the total of charge account balances. Gains in sales of soft goods have led the 11 percent year-to-year increase in charge accounts receivable. They have also been a factor in the 5 percent gain in revolving credit accounts outstanding. The amount outstanding on other types of instalment contracts has changed little over the year. In spite of the growth in credit accounts, collections have grown at a sufficient rate so that collection ratios were much the same as a year ago.

The region's merchants appear optimistic regarding sales for the remainder of the year. Inventories have risen above year-ago levels in most cases by amounts consistent with sales gains. Merchandise orders outstanding are well above year-earlier volume indicating confidence in future sales. With employment and incomes rising, this confidence appears to be well placed.







MANUFACTURING INDEXES (seasonally adjusted)	MASSACHUSETTS (1950–52 = 100)			NEW ENGLAND (1950–52 = 100)			UNITED STATES (1947–49 = 100)		
	July '59	June '59	July '58	July '59	June '59	July '58	July '59	June '59	July '58
All Manufacturing	122	121	105	121	122	104	157	158r	136
Primary Metals	99	104	92	97	103	79	113	150r	102
Textiles	50	51	48	73	74	68	n.a.	119	101
Shoes and Leather	119	124	98	126	128	107	n.a.	n.a.	104
Paper	107	107	99	125	125	114	n.a.	178	163

1958 figures revised for Massachusetts and New England

	NEW ENGLAND	Percent Change from:		UNITED STATES	Percent Change from:	
	July '59	June '59	July '58	July '59	June '59	July '58
BANKING AND CREDIT						
Commercial Loans ($ millions) (Weekly Reporting Member Banks)	n.a.	n.a.	n.a.	28,509	n.a.	n.a.
Deposits ($ millions) (Weekly Reporting Member Banks)	4,453	+ 2	0	n.a.	n.a.	n.a.
Check Payments ($ millions) (Selected Cities)	9,137	+ 2	+13	235,625	+ 3	+14
Consumer Installment Credit Outstanding (index, 1950–52 = 100)	224	+ 2	+ 4	245	+ 2	+10
TRADE						
Department Store Sales (index, seas. adj. 1947–49 = 100)	133	+13	+ 3	149	+ 3	+ 6
Department Store Stocks (index, seas. adj. 1947–49 = 100)	147	+ 3	+ 5	158	+ 1	+ 7
EMPLOYMENT, PRICES, MAN-HOURS, & EARNINGS						
Nonagricultural Employment (thousands)	3,579	0	+ 3	52,572	0	+ 5
Insured Unemployment (thousands) (excl. R. R. and temporary programs)	115	+13	−42	1,372	+ 3	−48
Consumer Prices (index, 1947–49 = 100)	127.1 (Mass.)	0	+ 1	124.9	0	+ 1
Production-Worker Man-Hours (index, 1950 = 100)	87.3	− 3	+12	100.8	− 2	+13
Weekly Earnings in Manufacturing ($)	81.20	− 1	+ 6	90.09	− 1	+ 4
OTHER INDICATORS						
Construction Contract Awards ($ thous.) (3-mos. moving averages, May, June, July)						
Total	184,511	−12	− 3	3,619,137	− 1	0
Residential	86,810	− 6	+23	1,709,593	− 3	+20
Public Works	28,585	−37	−39	622,491	0	−19
Electrical Energy Production (index, seas. adj. 1947–49 = 100)*	212.5	+ 3	+11	253.6	+11	+ 9
Business Failures (number)	41	−42	−26	1,071	−14	−15
New Business Incorporations (number)	915	− 7	+30	16,562	+ 3	+33

*Figure for last week of month

r = revised

n.a. = not available
e = estimated